WP3
N4C Verbal log Norut
Summer Test 2009
ABSTRACT (Max 400 word)

The first N4C Norut Summer Test will take place in Ytre Fiskelausvatn, Norway the 21\textsuperscript{th} and 22\textsuperscript{th} of July 2009. The development of the Hiker’s app in WP3 is in its second stage where we are concentrating on the synchronizing capabilities of PDAs and computers under field conditions. The hardware is standard of-the-shelf units designed for an office environment, and we need to test how the components behave in a realistic field environment. The tests are done with Nokia 810, Asus Eee PC 900 and iPhone. The type of questions we would like to investigate are: Maximum distance of communication with standard Wi-Fi cards, and test of ad-hoc p2p software for communication between units. Although a bit premature, we plan to make a separate test with parts of the DTN2 software as well.

Due date of deliverable: date/month/year Actual submission date: date/month/year

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<th>Author</th>
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<td>30-07-2009</td>
<td>Karl Johan Grøttum</td>
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Dissemination level

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1. N4C Norut Summer Test 2009

Location: Ytre Fiskelausvatn, Balsfjord, Norway
Participants: Arne-Wilhelm Theodorsen, Karl Johan Grøttum, Sigurd Sjursen

This is not a formal report, it is a transcript of the notes taken during the test days. The test report based on the log files and these notes will be published later.

The location is Arne-Wilhelm’s cabin at Ytre Fiskelausvatn. It was chosen because
- There is no mobile phone connection
- There is no Wi-Fi connection
- There is no power connection, however, there is a petrol driven power generator for charging of batteries etc.
- It is accessible by car
- It has all equipment for surviving in the field (fireplace, beds, chairs and a gourmet kitchen)

Hardware for the tests:
1 Asus Eee PC 900 (sefref), 3 Nokia N810 (Norut, Staale and Lars).
In addition we had 4 walkie-talkie handsets for efficient communication during the distance tests.

Figure 1: Sigurd and Arne-Wilhelm planning test
Monday 20.07.2009  09:00 – 12:30
Preparation of the test equipment at Norut office.
Walk-through of the test procedures.
Charging all batteries for PC and PDAs.
Set-up and last minute updates of the test software.

Departure by car to the test site at 12:30.
After 1 hour 20 minutes driving we arrived at Storsteinnes where we went shopping for food etc. that would make us survive for 3 days in the wilderness.

Arrival at Fiskelausvatn at 16:30:
Inspection of test area (see map).
Installation of test gear and personal effects in Arne-Wilhelm’s cabin.
Established GPRS contact at one particular location outside the core test area (no mobile connection inside the test area).
Checking of test equipment.
Communication test of 4 walkie-talkie handsets to be used during distance tests.
20:00 end of testing first day. Gourmet dinner was then served by Arne-Wilhelm.

21.07.2009  10:00 – 18:00 at Fiskelausvatn.
Testing according to the test plan. Here are some notes about the details
(Logs on the computers will give the more complete picture):

2. Sync of Map Cache

*Seftref*: Hikers App with Map Cache from *Norut, Staale and Lars*.
Reset Hikerdaemon.
Check that all units are running Hikers App in ad-hoc mode (Gateway: *seftref*, Nodes: *Norut, Staale and Lars*). All units show status Reachable.
Sync of Map Cache from *Norut* to *Seftref*
Sync of Map Cache from *Seftref* to *Staale and Lars*.
Attempt to use dftp (Prophet) to send a copy of Map Cache (not completed).

3. Sync of POI

Manual entry of coordinates (POI) for AWT_cabin on *Norut*.
Sync of poidb with reachable (seftref, Staale, Lars).
Start of Maemo Mapper (MM) on seftref, Staale, Lars. MM displays AWT_cabin for all three units. Test finished 11:52.
12:00 *Seftref* shows low battery – only 20 min power left. Generator is started and charging started on all units. *Staale* and *Karl* are turned off. *Norut* is given a manual POI (the road junction by the cabin).

Sync of POI from *Norut* to *seftref*. Screen dump of *Norut* at 12:26. Turn off *Norut*. *Seftref* shows 0 (zero) as Reachable. Turn on *Staale*. Start Hikerdaemon, Hikers GUI. *Seftref* is Reachable. On *seftref*, makes a sync of poidb.
On **Staale**, start MM and MM shows new POI in the map.

Screen dump of **Staale**.

**Figure 4:** Sync of POI.db on seftref (Asus Eee PC with Ubuntu Linux)

**Figure 5:** New POI PointAWT_cabin on Staale

Turn on **Karl**.
Start Hikerd daemon, Hikers GUI.
**Seftref** and **Staale** is Reachable.

On **Staale**, make a sync of poidb.
On **Karl**, start MM and MM shows new POI in the map.
Screen dump of **Karl**.
**Question:** When two units have met and are Auto discovered, which one should take the initiative to make the sync? Should it be the unit with “the least information”? How do we know which unit this is?
4. Test of Prophet (13:15)

Task: Set up communication with Prophet between seftref and Norut. Communication fails when we attempt to do this at the test site! Seftref is configured to be a Gateway.

![Prophet Window - seftref.png](image)

**Figure 7: Prophet on seftref**

When trying the same setup in the office environment, the communication is established between seftref and Norut. The office setup has the following features: seftref and Norut are both communicating on the office LAN and will see the office gateway and have access to the office DNS server which is on the Norut office domain.

Out in the field the office LAN is absent, there is no DNS server, and seftref is supposed to act as a gateway without any legacy Internet infrastructure.

The failing test made us realize this situation. One could argue that it could have been deduced by analyzing the problems beforehand, but nevertheless, a test without any interfering Wi-Fi infrastructure proved to be very helpful.

Several attempts to patch ip-addresses on seftref and Norut did not solve any problems. We have sent an e-mail to Samo and Elwyn and asked for help in this question, but no response came in while we were out in the field (e-mail was sent with windows laptop using iPhone as modem). This question must be solved before we can go further with Prophet. A possible fix might be to set up a local DNS file (etc/hosts?) on seftref?
5. Sync of Map db (15:00)

Norut contained an updated Map db.
Staale, Lars and sefref does not have the updated Map db.
Norut makes a sync of the Map db while the three other units are Reachable.
Screenshots are taken for all units.

![New Map db with Rethimno, Crete, Greece on Karl](image8)

Staale, Lars and sefref start up MM.
All units show that they have received the updated Map db from Norut.

![Map db VESTreet on Karl](image9)
6. Sync of Geoblog message with own position (15:20)

Staale records own position in a text file and syncs this with the three other units. Lars, Norut and seftref receives message and can display the message.

Lars, Norut and seftref receives message and can display the message.

7. DTN connection to Internet (16:00)

Mobile phone connectivity could be reached about one kilometre from the test site. Using a mobile phone (Nokia E60) as modem, the test will show if we can connect to Internet via Telenor GPRS. The plan was to connect via DTN2 to an office PC at Norut. The test failed. Reason: We did not get the modem settings right on the Nokia E60 (finger trouble).
8. Test of auto discovery and range for Nokia N810

Wednesday 22.07.2009 09:30 – 15:30

Figure 12: Sigurd and Arne-Wilhelm ready for test on day 2

Figure 13: N4C Hiker's application on seftref
Figure 14: Hiker's app range test: Karl - 180 m - Norut - 170 m - Staale unreachable

Figure 15: Hiker's app range test: Karl - 213 m - Norut - 194 m - Staale unreachable

Figure 16: Hiker's app range test: Karl - 227 m - Norut - 204 m - Staale unreachable
Figure 17: Hiker's app range test: Karl unreachable - 175 m - Norut - 169 m – Staale

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<th>Alt</th>
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<td>0m</td>
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Figure 18: Hiker's app: Photo blog

Figure 19: Hiker's app range test done successfully!

18:00 Before we returned to Tromsø we also tried to connect on DTN2 to Internet on a commercial WiFi hotspot at the petrol station Statoil in Nordkjosbotn, but it appears that Telenor does not support Linux, so the log-in & payment function in web (Firefox) never came up.